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techbriefs

Ball Valve Extractor

Engineers at Washington Savannah River Company (WSRC) have developed an easy, quick method for unseating and removing a ball valve from a process line. Using a simple, sliding impact tool, this method shortens labor time, reduces maintenance cost, and increases worker safety.

New tool extracts ball valves in seconds

Ball valves are seated between gaskets in a housing with tight dimensional tolerances to provide secure, leak-proof seals. Removal of the valves for repair, maintenance, or replacement is time consuming. Current methods of using a specialized clamp-on tool, pliers, or a bar to pry the valves loose are cumbersome and can take as long as 45 minutes.

These methods also may result in damage to the outer surface of the valves. Subsequent use of the surface-damaged ball valves can accelerate degradation of the sealing gaskets, thereby increasing maintenance and shortening replacement intervals.

Using conventional methods in harsh environments can contribute to heat exhaustion or other worker impairment.

Quick and easy

With the new ball valve extractor tool, workers can unseat and remove a ball valve in seconds. The easy, two-step method prevents damage to the outer surface of the valve, extending the life of the valve and sealing gaskets.

The tool is equally useful with ball valve assemblies that are covered with process residue, which can make conventional removal of ball valves even more difficult.

Use of the tool in harsh environments can reduce worker exposure to radioactivity or other environmental factors such as chemicals or heat.

at a glance

- useful in tight space
- operates in any orientation
- fits any size ball valve
- reduces maintenance costs
- u.s. patent 6,378,550

Two-step method

The ball valve extractor comprises a shaft with a tip at one end, a stop at the other end, and a sliding handle in between. The tip is inserted into the ball valve stem hole and rotated to "lock" inside the valve. The handle is then slid forcibly up the shaft to strike the stop, which causes a hammer-like blow to the valve. This blow unseats the valve.

Versatile

Where tight tolerances prevent the rapid movement of the handle along the shaft, the shaft can be inserted with the handle fully extended at its top. An upward hammer blow to the handle will unseat the valve.

The tool can be used in any position or angle from vertical to horizontal.

Interchangeable tips enable the tool to be used with different stem hole configurations and with valves sized for various inner flow diameter openings.

Technology transfer

SRNL is the applied research and development laboratory at the Savannah River Site (SRS). With its wide spectrum of expertise in areas such as homeland security, hydrogen technology, materials, sensors, and environmental science, SRNL's cutting edge technology delivers high dividends to its customers.

SRNL and SRS are managed for the U.S. Department of Energy by Washington Savannah River Company (WSRC). WSRC is responsible for transferring technologies to the private sector so that these technologies may have the collateral benefit of enhancing U.S. economic competitiveness.

Partnering opportunity

The U.S. Patent and Trademark Office has issued Patent 6,378,550 on this invention. Under a nonexclusive license with WSRC, Appalachian Made Tool Company of Katy, Texas, manufactures and distributes the ball valve extractor.

WSRC invites interested companies with proven capabilities in this area of expertise to enter into a licensing agreement with WSRC to manufacture and market this device as a commercial product. Interested companies will be requested to submit a business plan setting forth company qualifications, strategies, activities, and milestones for commercializing this invention. Qualifications should include past experience at bringing similar products to market, reasonable schedule for product launch, sufficient manufacturing capacity, established distribution networks, and evidence of sufficient financial resources for product development and launch.

for more information

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